

THE HONORABLE JOHN C. COUGHENOUR

UNITED STATES DISTRICT COURT  
WESTERN DISTRICT OF WASHINGTON  
AT SEATTLE

PATRICK S. DRAGOS,

Plaintiff,

v.

MICHAEL G. CORNEA, *et al.*,

Defendants.

CASE NO. C19-1338-JCC

ORDER

This matter comes before the Court on Defendant's objections (Dkt. No. 87) to the ruling of the Honorable Teresa Fricke, United States Magistrate Judge, excluding the expert testimony of Bradley Probst (Dkt. No. 80). Having thoroughly considered Defendant's objections and the relevant record, the Court hereby **OVERRULES** the objections for the reasons explained herein.

**I. BACKGROUND**

Plaintiff Patrick Dragos brings this negligence action against Defendant Michael Cornea, alleging that he suffered significant injuries when Defendant's Subaru Outback struck his Audi A8 in the rear at the intersection of South Jackson Street and Fourth Avenue South in Seattle in 2016. (*See generally* Dkt. No. 1-1.) Plaintiff alleges that he was fully stopped at a red light on South Jackson Street waiting to turn left onto Fourth Avenue when Defendant's vehicle rear-ended him and pushed his vehicle several feet into the intersection despite his foot being on the brake. (*Id.* at 2–3.) According to Plaintiff's medical expert, the collision caused injuries to

1 Plaintiff's neck, shoulders, upper back, mid-back, low back, right hip, and right leg. (Dkt. No.  
2 66-1 at 6.)

3 Defendant retained Bradley Probst as an expert witness. (Dkt. Nos. 67 at 6, 72-1 at 2.)  
4 Mr. Probst is a biomechanist who performed an evaluation of the collision "in relation to the  
5 forces and claimed biomechanical failures involved." (Dkt. No. 72-1 at 2.) In performing his  
6 evaluation, Mr. Probst identified the "biomechanical failures" that Plaintiff claims were caused  
7 by the collision—specifically, Plaintiff's claims that he suffered a hip labral tear with  
8 femoracetabular impingement and a lumbar spine sprain/strain. (*Id.* at 4–5.) Then Mr. Probst  
9 quantified the forces, accelerations, and changes in velocity experienced by Plaintiff's Audi in  
10 the collision and determined Plaintiff's "kinematic responses within the vehicle." (*Id.* at 4.) Next,  
11 he defined the "biomechanical failure mechanisms known to cause [a hip labral tear with  
12 femoracetabular impingement and a lumbar spine sprain/strain]" and determined "whether the  
13 defined biomechanical failure mechanisms were created" during the collision. (*Id.*) Finally, he  
14 "evaluate[d] [Plaintiff's] personal tolerances . . . to determine . . . whether a causal relationship  
15 exists between the subject incident and his reported biomechanical failures." (*Id.*)

16 Mr. Probst concluded that in the collision, the Audi A8 in which Plaintiff was seated  
17 experienced a change in velocity (a value referred to as "Delta-V") significantly below 10 miles-  
18 per-hour and an average acceleration significantly less than 3.0 g. (*Id.* at 7.) To reach this  
19 conclusion, he performed an "energy-based crush analysis," using software called EDCRASH,  
20 which showed that "significantly greater deformation [of the Subaru Outback] would occur in a  
21 10 mile-per-hour Delta-V impact than was observed in the subject incident."<sup>1</sup> (*Id.*) In addition to  
22 this energy-based crush analysis, Mr. Probst also used an alternative model, on the basis of  
23 which he concluded that "the subject Audi A8 . . . may have been exposed to an event more  
24 consistent with a Delta-V of 1.8 mph and peak acceleration of approximately 0.8 g." (*Id.* at 8.)

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25  
26 <sup>1</sup> To determine how much deformation was observed in the subject incident, Mr. Probst relied on  
photographs of Defendant's Subaru Outback and the repair record. (*Id.*)

1 He opined that “[i]t is to be reasonably expected that Mr. Dragos experiences accelerations and  
2 loads essentially equivalent to the subject incident on a daily basis while in a non-sedentary  
3 state,” citing “[e]vents such as slowly climbing stairs, standing on one leg, or rising from a chair”  
4 or “running, jumping, or lifting weights.” (*Id.* at 9.) He also concluded that, based on Plaintiff’s  
5 characteristics, position in the car, and the fact that he was wearing a seatbelt, “any motion of  
6 [Plaintiff] would have been limited to well within the range of normal physiological limits.” (*Id.*  
7 at 10.)

8 Finally, Mr. Probst concluded that because “[t]he energy imparted to [Plaintiff] was well  
9 within the limits of human tolerance and well below the acceleration levels he likely experienced  
10 during normal daily activities,” “there is no biomechanical failure mechanism present to causally  
11 link [Plaintiff’s hip labral tear and lumbar spine sprain/strain] and the subject incident.” (*Id.* at  
12 10.) Specifically, he concluded that “[t]he motion of [Plaintiff’s] hips would have been well  
13 supported and constrained during the subject incident” because, “his body would have moved  
14 rearward relative to the subject Audi A8’s interior” and “[t]he seatback would limit the range of  
15 movement to well within normal levels” with “little, or no, forward rebound of [his] body away  
16 from the seatback.” (*Id.* at 11.) With respect to Plaintiff’s lumbar spine, Mr. Probst concluded  
17 that “[d]uring an event such as the subject incident, the thoracic and lumbar spine of Mr. Dragos  
18 is well supported by the seat and seatback. . . . ; no kinematic biomechanical failure mechanisms  
19 are created” and “thus it would not be possible to load the tissue to its physiological limit where  
20 tissue failure, or biomechanical failure, would occur.” (*Id.* at 13.)

21 According to Defendant, Mr. Probst is expected to testify, consistent with the conclusions  
22 in his report, that “there is no biomechanical failure mechanism present in the subject October  
23 28, 2016 motor vehicle collision to account for Plaintiff[s] hip biomechanical failures” or his  
24 “lumbar biomechanical failures” and, “as such, a causal relationship between the subject incident  
25 and the hip biomechanical failures” or the “lumbar biomechanical failures” cannot be made.  
26 (Dkt. No. 67 at 6.)

1 Plaintiff filed a motion *in limine* to exclude Mr. Probst’s testimony under Federal Rules  
2 of Evidence 702 and 403. (*See generally* Dkt. No. 65.) Plaintiff argues that Mr. Probst’s  
3 testimony is about the causation of injury, and that, as a biomechanist and not a medical expert,  
4 Mr. Probst is not qualified to opine on that issue. (Dkt. No. 65 at 6–8.) He further contends that a  
5 calculation of the acceleration forces experienced by a motor vehicle is not a reliable method to  
6 determine injury. (*Id.* at 8–9.) For this reason, he argues, Mr. Probst’s testimony will not help the  
7 jury decide whether Mr. Dragos’ injuries resulted from the accident, and even if his opinions  
8 about the forces in the collision have some minimal relevance, the risk of unfair prejudice and  
9 confusion substantially outweighs the probative value. (*Id.* at 10–11.)

10 Defendant insists that Mr. Probst “has not and will not offer any medical opinions in this  
11 case. His testimony is strictly limited to the forces exerted on Mr. Dragos in the subject collision  
12 and helping the jury to understand the relative forces that people experience in the course of  
13 performing activities of daily living.” (Dkt. No. 70 at 2.) According to Mr. Cornea, “the field of  
14 biomechanics . . . is directly relevant to the central issue in this case: the amount of directional  
15 force produced by the subject accident, and exerted upon Plaintiff’s hip.” (*Id.* at 6.)

16 Judge Fricke issued an order granting Plaintiff’s motion and excluding Mr. Probst’s  
17 testimony. (Dkt. No. 80.) Judge Fricke concluded that Mr. Probst’s energy crush analysis  
18 methodology was not reliable—specifically, that his method of identifying the expected  
19 deformation to the Subaru Outback by *inputting* a particular Delta-V value into EDCRASH is  
20 not validated and is also inconsistent with the EDCRASH user manual. (*Id.* at 10–12.) Judge  
21 Fricke noted that the sources cited by Mr. Probst in support of his methodology show that the  
22 accuracy and reliability of the EDCRASH program was established by inputting measured  
23 deformation data to calculate Delta-V, *not* by inputting a Delta-V value, and that similarly, the  
24 EDCRASH user manual lists damage profiles as a program input and Delta-V as a program  
25 *output*. (*Id.* at 11.) Moreover, EDCRASH validation has been performed with physically  
26 measured deformation and not deformation as determined by photographs and repair estimates.

(*Id.* at 12.) Judge Fricke similarly concluded that Mr. Probst’s alternative sideswipe analysis of the collision was unreliable because Mr. Probst used photographs and repair estimates instead of measured vehicle damage. (*Id.* at 14–15.) She also concluded that Mr. Probst’s method of calculating the force experienced by Plaintiff’s vehicle is not reliable because his assumption of a constant rate of acceleration over 150 milliseconds is contradicted by data showing that the acceleration of the front car in a rear end collision is not constant. (*Id.* at 16–17.) Finally, Judge Fricke ruled that Mr. Probst’s testimony lacks relevance and that even if it had some theoretical relevance, the probative value is substantially outweighed by the danger of unfair prejudice, confusion, and misleading the jury. (*Id.* at 17–19 (citing Fed. R. Evid. 403).)

## **II. DISCUSSION**

### **A. Legal Standard**

#### **1. Standard of Review**

Federal Rule of Civil Procedure 72(a) allows a party whose case is referred to a magistrate judge to object to an order addressing nondispositive matters. The district judge must consider timely objections and “modify or set aside any part of the order that is clearly erroneous or is contrary to law.” Fed. R. Civ. P. 72(a). The clearly erroneous standard is “significantly deferential, requiring ‘a definite and firm conviction that a mistake has been committed.’” *Concrete Pipe & Prods. v. Constr. Laborers Pension Trust*, 508 U.S. 602, 623 (1993); *Security Farms v. Int’l Brotherhood of Teamsters*, 124 F.3d 999, 1014 (9th Cir. 1997).

#### **2. Admissibility of Expert Testimony**

Under Federal Rule of Evidence 702, a witness who has been qualified as an expert by knowledge, skill, experience, training, or education may give an opinion on scientific, technical, or otherwise specialized topic if

- (a) the expert’s scientific, technical, or other specialized knowledge will help the trier of fact to understand the evidence or to determine a fact in issue; (b) the testimony is based upon sufficient facts or data; (c) the testimony is the product of reliable principles and

1 methods; and (d) the expert has reliably applied the principles and  
2 methods to the facts of the case.”

3 Fed. R. Evid. 702. To be admissible, an expert’s testimony must be (1) reliable and (2) relevant.  
4 *Daubert v. Merrell Dow Pharms., Inc.*, 509 U.S. 579, 590–591 (1993).

5 The focus of the reliability inquiry is on the expert’s principles and methodologies. *Id.* at  
6 595. To determine whether an expert’s methodology is reliable, the Court may consider many  
7 factors, including whether the theory or technique can be and has been tested; whether the theory  
8 or technique has been subject to peer review and publication; whether there is a known or  
9 potential error rate; and whether the theory or technique is generally accepted in the relevant  
10 community. *Id.* at 593–594; *Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 141 (1999) (“[T]he  
11 test of reliability is ‘flexible’ and *Daubert*’s list of specific factors neither necessarily nor  
12 exclusively applies to all experts or in every case.”).

13 The relevance inquiry asks whether the expert testimony “will help the trier of fact to  
14 understand the evidence or to determine a fact in issue.” Fed. R. Evid. 702(a). To be helpful and  
15 thus relevant, an expert’s methodology must have “a valid scientific connection to the pertinent  
16 inquiry,” *Daubert*, 509 U.S. at 591–592, such that “it logically advances a material aspect of the  
17 proposing party’s case,” *Daubert v. Merrell Dow Pharms., Inc.*, 43 F.3d 1311, 1315 (9th Cir.  
18 1995) (on remand). Determining this “fit” is important because, as explained by the United  
19 States Supreme Court, “scientific validity for one purpose is not necessarily scientific validity for  
20 other, unrelated purposes.” *Daubert*, 509 U.S. at 591.

21 The Court is afforded broad discretion when determining, pursuant to its gatekeeping  
22 function, whether an expert’s testimony is reliable and relevant. *Hangarter v. Provident Life &*  
23 *Acc. Ins. Co.*, 373 F.3d 998, 1017 (9th Cir. 2004).

## 24 **B. Defendant’s Objections**

25 Defendant argues that Judge Fricke erroneously concluded that Mr. Probst’s  
26 methodologies fail both the reliability and relevance prongs of *Daubert* and Rule 702 and that

1 Mr. Probst's testimony is also excludable under Federal Rule of Evidence 403. (*See generally*  
2 Dkt. No. 87.)

3 As an initial matter, Defendant argues that Judge Fricke's ruling "rests upon a  
4 fundamental misunderstanding and interpretation of Mr. Probst's methods." (Dkt. No. 87 at 4.)  
5 Defendant points to Judge Fricke's summary of the steps involved in Mr. Probst's energy-based  
6 crush analysis and contends that she inaccurately stated Mr. Probst "selected a 10-mph trial  
7 speed for the defendant's vehicle" and "[s]imulated the collision in EDCRASH." (*Id.* at 5.)  
8 Defendant argues that Mr. Probst in fact selected a 10-mph Delta-V value—which is the *change*  
9 in velocity, not the speed at which Defendant's vehicle was moving at impact—and then used  
10 EDCRASH not to "simulate the collision" but to "gain an understanding of the extent of  
11 deformation the subject vehicles would experience . . . and then relate that deformation to the  
12 evidence regarding vehicle damage due to the subject incident." (*Id.*) At most, Defendant points  
13 to an instance of imprecise word choice in describing the steps involved in Mr. Probst's analysis.  
14 Judge Fricke's order clearly demonstrates that her conclusions were based on an accurate  
15 understanding that Mr. Probst selected a Delta-V value, used EDCRASH to determine the  
16 expected extent of deformation to the vehicles, and compared that to the observed vehicle  
17 damage. (*See* Dkt. No. 80 at 7, 10–11.) Defendant's objections on this basis are thus  
18 OVERRULED.

19 With respect to Mr. Probst's energy crush analysis, Defendant argues that Judge Fricke  
20 erroneously concluded (1) that inputting Delta-V to reverse calculate vehicle deformation is not a  
21 sufficiently validated methodology, (2) that changes in bumper and car construction from 1974  
22 to 2011 lower the overall confidence that EDCRASH is an adequately peer reviewed software,  
23 and (3) that using photographs and repair estimates to determine vehicle deformation weakens  
24 the reliability of Mr. Probst's methodology. (Dkt. No. 87 at 6–9.) Having thoroughly considered  
25 Defendant's objections and Mr. Probst's declaration (Dkt. No. 88), the Court finds that  
26 Defendant has not demonstrated that Judge Fricke's conclusions are clearly erroneous.

1 Accordingly, these objections are OVERRULED.<sup>2</sup>

2 Defendant also argues that Judge Fricke incorrectly found Mr. Probst's calculation of g-  
3 force is unreliable because he used a constant rate of acceleration in his calculations. (Dkt. No.  
4 87 at 8–9.) According to Defendant, Mr. Probst utilized a haversine in his model, which is not a  
5 constant rate of acceleration. (*Id.* at 9.) Even if Judge Fricke was incorrect about Mr. Probst's  
6 assumption with respect to the rate of acceleration, she cited three independent bases for finding  
7 Mr. Probst's methodology unreliable, and the Court has sustained those bases. Therefore,  
8 Defendant has not shown that Judge Fricke's erred in concluding that Mr. Probst's testimony  
9 fails the reliability prong of *Daubert*.

10 Finally, Defendant argues that Judge Fricke erred in concluding that Mr. Probst's  
11 testimony is not relevant and, even if theoretically relevant, would be more prejudicial than  
12 probative under Rule 403. (Dkt. No. 87 at 11–12.) Because Judge Fricke did not err in  
13 concluding that Mr. Probst's methodology is unreliable, she properly concluded that his  
14 testimony is irrelevant and, at best, more prejudicial than probative. The Court agrees that expert  
15 testimony that relies on an unreliable methodology has little or no probative value, and that any  
16 probative value is outweighed by the danger that it will confuse or mislead jurors.

17 Moreover, Mr. Probst's testimony fails the relevancy prong of *Daubert* for additional and  
18 independent reasons. Even if Mr. Probst's methodology for calculating the forces involved in the  
19 collision were reliable, his testimony is irrelevant except for the improper purpose of supplying a  
20 medical causation opinion. Defendant insists that Mr. Probst is not testifying about medical  
21 causation, but this argument is belied by Mr. Probst's report and Defendant's expert witness  
22 disclosures, both of which make clear that Mr. Probst intends to testify that the forces involved in

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23 <sup>2</sup> Defendant also argues that Judge Fricke "incorrectly concludes that Mr. Probst's methods were  
24 invalid because he used an older version of the EDCRASH program." (Dkt. No. 87 at 7.) But  
25 Judge Fricke did not conclude that he used an older version of the program or that his method  
26 was invalid for that reason. In fact, she assumed he was using the most recent version. (Dkt. No.  
80 at 11.) Accordingly, this objection is also OVERRULED.



1 the collision could not have caused Plaintiff's claimed hip and back injuries. This is testimony  
2 about medical causation that Mr. Probst, as a biomechanist and not a medical expert, is *not*  
3 qualified to give. Even if he were qualified to give medical causation testimony, Defendant has  
4 not shown that he can reliably determine the fact or extent of Plaintiff's injuries from a  
5 calculation of the forces involved in the collision.<sup>3</sup>

6 Defendant does not dispute that Mr. Probst is unqualified to give medical causation  
7 testimony, but instead insists that Mr. Probst's testimony "is strictly limited to the forces exerted  
8 on [Plaintiff] in the subject collision and helping the jury understand the relative forces that  
9 people experience in the course of performing activities of daily living." (Dkt. No. 70 at 2.) If  
10 Mr. Probst is going to limit his opinion in this manner, then his testimony is not relevant to the  
11 "pertinent inquiry" in the case—whether the collision caused Plaintiff's hip, back, and other  
12 injuries. Without a valid connection to the pertinent issue of medical causation, the evidence  
13 about forces has no purpose other than to invite the jury to improperly speculate that, because  
14 Plaintiff purportedly experienced the same acceleration in the collision that he experiences  
15 during daily activities, he could not have been injured. For this reason, even if Mr. Probst's  
16 testimony about forces were minimally relevant, its probative value would be *substantially*  
17 outweighed by its potential prejudicial impact and the danger that it would confuse and mislead  
18 the jury. *See* Fed. R. Evid. 403.

19 In sum, the Court concludes that Judge Fricke properly applied the *Daubert* framework  
20 and did not clearly err in finding Mr. Probst's particular energy-based crush methodology

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21 <sup>3</sup> Numerous scientific studies cited by Plaintiff demonstrate that it is not possible to reliably  
22 determine physical injury from vehicle damage or g-forces in a collision. (*See* Dkt. No. 66-5 at  
23 20 (*Human Tolerance to Impact Conditions as Related to Motor Vehicle Design*, SAE Technical  
24 Paper (2011), 154 (John Smith & Christina E. Smith, *Advances in the Understanding of Rear*  
25 *Impact Collision—Updating Physics, Biomechanics, and Statistics*, Trial Talk 21, 21 (2009)).)  
26 Mr. Probst cites articles he contends support his position that injury can be determined from g-  
forces, (Dkt. Nos. 72 at 4, 72-1 at 29–54, 72-2 at 2–45), but the Court finds the explanations  
from other experts as to why determining injury from g-force is overly simplistic and unreliable  
are more compelling and supported by research.

1 unreliable. The Court further finds that even if Mr. Probst's method of calculating g-forces was  
2 reliable, his testimony about the g-forces experienced in the collision is not relevant to the  
3 material issues in this case. Accordingly, his testimony is inadmissible under Rule 702; *Daubert*,  
4 509 U.S. 579; and Rule 403.

5 **III. CONCLUSION**

6 For the foregoing reasons, Defendant's objections (Dkt. No. 87) to Judge Fricke's ruling  
7 (Dkt. No. 80) are OVERRULED and Plaintiff's motion *in limine* (Dkt. No. 65) to exclude the  
8 testimony of Bradley Probst is GRANTED.

9 DATED this 26th day of August 2021.

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A handwritten signature in black ink, reading "John C. Coughenour", is written over a horizontal line.

John C. Coughenour  
UNITED STATES DISTRICT JUDGE